AP832e

AP832i

# AP832

## Dual-radio, Three-stream 802.11ac Wireless Access Point

### High-performance wireless connectivity for high-density environments

The AP832 is the industry's first 802.11ac access point capable of supporting two concurrent 5 GHz 3x3:3ss radios, designed for high-density deployments in large offices, schools, universities, hospitals, hotels, and large retail stores. The AP832 supports an aggregate 2.6 Gbps data rate for the most demanding business applications like video and voice.

The AP832 access point allows administrators to prioritize applications to improve the user experience with Meru's unique Context Aware Layers technology. For schools, this means Learning Management System applications can be assigned to one dedicated channel layer, while online classroom video feeds can be dedicated to another channel layer. For healthcare, life-critical applications such as patient monitoring can be dynamically assigned to one channel layer, doctor and nursing applications can be assigned to a second layer, and patient applications can be placed on a third channel layer.

The AP832 also provides unique roaming support because Meru enables the network (not the client) to control roams via our Air Traffic Control® technology, resulting in the industry's lowest roaming latency figures–a true zero-handoff.

Additionally, Meru's single-channel technology allows the AP832 to leverage the 802.11ac design for pervasive deployment of 80 MHz channels in real-world deployments, which effectively doubles the available data rate and dramatically increases throughput availability for Meru customers.

Like other Meru access points, the AP832 integrates seamlessly with our E(z)RF® network management system, Identity Manager, and other application solutions to bring intelligent management and resilient wireless services to your network.

| Features | Benefits |
|---|---|
| • Supports IEEE 802.11ac-Draft with dual radios and three spatial streams<br>• Supports multiple wireless deployment options<br>• Support for multiple operating modes: centralized, distributed, mesh, bridged, and VPN tunnel modes<br>• Integration with Meru controllers and management software applications<br>• Supports either internal or external antennas | • Provides an optimized 802.11ac experience in the industry with Very High Throughput (VHT) capabilities<br>• No channel planning, and delivers seamless mobility<br>• Offers flexible deployment options for diverse customer requirements<br>• Offers full management and security assurances<br>• Provides a choice of two models to suit your needs |

# AP832

## TECHNICAL SPECIFICATIONS

### QoS
WMM support
Dynamic WMM rate adaptation
Configurable QoS rules per user and application

### OPERATING MODES
Centralized deployment mode
Distributed deployment mode
Remote VPN tunnel mode

### SECURITY
WEP, WPA-PSK, WPA-TKIP, WPA2-AES, 802.11i, 802.1X (EAP-TLS, EAP-TTLS, PEAP, LEAP, EAP-FAST, EAP-SIM, EAP-AKA, and EAP-MD5)
802.1X and captive portal authentication against local database on the controller, RADIUS, and Active Directory
RADIUS-assisted per-user and per-ESSID access control via MAC filtering

### MANAGEMENT
Centrally managed by any Meru controller running System Director
Automatically discovers controllers and downloads configuration settings for plug-and-play deployment
Upgrades and management using System Director/E(z)RF® Network Manager
Support for SNMP

### WIRELESS SPECIFICATIONS
**Model Introduction**
AP832i dual-radio, dual-band IEEE Std 802.11a/b/g/n/ac-Draft access point with six internal omnidirectional antennas
AP832e dual-radio, dual-band IEEE Std 802.11a/b/g/n/ac-Draft access point with six RP-SMA connectors and six external omnidirectional antennas

**Supported radio technologies**
Dual-band, dual-radio access point
3x3:3SS (three spatial streams)
Indoor application
Supported 2.4 GHz (TurboQAM Mode) and 5.x GHz for dual-band, dual-radio operation, data rate up to 1.9 Gbps
Supported dual 5.x GHz IEEE Std 802.11ac operation with RF collocation (FCC Permit by Ask provision), data rate up to 2.6 Gbps
Supported transmit beam-forming (TxBF)
IEEE Std 802.11ac Draft standard
IEEE Std 802.11n/ac with Draft Orthogonal Frequency Division Multiplexing (OFDM)
IEEE Std 802.11b with Direct Sequence Spread Spectrum (DSSS)
IEEE Std 802.11ac Draft with 20/40/80 MHz (VHT20/40/80) channel width
IEEE Std 802.11n with 40 MHz (HT40) channel width
IEEE Std 802.11a/g with 20 MHz channel
IEEE Std 802.11b with 5 MHz channel

**Supported Modulation**
IEEE Std 802.11ac Draft: BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM
IEEE Std 802.11a/g/n: BPSK, QPSK, 16-QAM, 64-QAM
IEEE Std 802.11b: BPSK, QPSK, CCK
Featured 256-TurboQAM modulation for 2.4 GHz and 5 GHz operations

**Supported MCS Index**
Supported MCS0~MCS9 for IEEE Std 802.11ac Draft
Supported MCS0~MCS15 for IEEE Std 802.11n

**Supported Frequency Bands**
2.400 ~ 2.4835 GHz (ISM)
5.150 ~ 5.250 GHz (UNII-1)
5.250 ~ 5.350 GHz (UNII-2, upon DFS approval)
5.470 ~ 5.725 GHz (UNII-2 Extended, upon DFS approval)
5.725 ~ 5.825 GHz (UNII-3)
Country-specific restrictions apply; adjusted by controller upon approval

**Operating Channels**
2.4 GHz Channels
- CH1~11 for U.S., Canada
- CH1~13 for Japan, Europe, rest of world

5 GHz HT20 (20 MHz) Channel
- Non-DFS Channel: CH36, 40, 44, 48, 144, 149, 153, 161, 165
- DFS Channel upon approval: CH 52, 56, 60, 64, 100, 104, 108, 112, 116, 120*, 124*, 128*, 132*, 136, 140, 144 (*weather radar)

5 GHz HT40 (40 MHz) Center Channel
- Non-DFS channel: CH38, 46, 151, 159
- DFS channel upon approval: CH54, 62, 102, 110, 118*, 116*, 134* 134, 142 (*weather radar)

5 GHz VHT80 (80 MHz) Center Channel
- Non-DFS channel: CH42, 155
- DFS channel upon approval: CH58, 106, 122* (*weather channel)

Platform supports Dynamic Frequency Selection (DFS & DFS/TPC) for future 5 GHz channel adoption
Country-specific restrictions apply; adjusted by controller upon approval

**Supported Data Rate (Mbps)**
IEEE Std 802.11ac Draft three streams: 19.5 ~ 1300 Mbps (MCS0-HT20@800nS~MCS9-HT40@400nS)
IEEE Std 802.11ac Draft per stream: 6.5 ~ 433.3 Mbps (MCS0-HT20@800nS~MCS9-HT40@400nS)
IEEE Std 802.11n Three streams: 13 ~ 450 Mbps (MCS9-HT20@800nS to MCS23-HT40@400nS)
IEEE Std 802.11n Per stream: 6.5 ~ 150 Mbps (MCS0-HT20 @ 800nS to MCS7-HT40@400nS)
IEEE Std 802.11a/g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
IEEE Std 802.11b: 1, 2, 5.5, 11 Mbps

**Transmit Power (TX) and Receive Sensitivity (RX) per Stream**

| Configuration | Maximum conductive point transmit power per stream (dBm) | Maximum EIRP per stream (dBm), External Antenna SKU | Maximum EIRP per stream (dBm), Internal Antenna SKU | RX (dBm) |
|---|---|---|---|---|
| 802.11b | 21.0 | 25.0 | 24.0 | -85 |
| 802.11g | 20.0 | 24.0 | 23.0 | -70 |
| 802.11n, 2.4 GHz HT20 | 19.0 | 23.0 | 22.0 | -65 |
| 802.11n, 2.4 GHz HT40 | 18.0 | 22.0 | 21.0 | -64 |
| 802.11a | 18.0 | 24.0 | 22.0 | -69 |
| 802.11n, 5 GHz, HT20 | 17.0 | 23.0 | 21.0 | -67 |
| 802.11n, 5 GHz, HT40 | 16.0 | 22.0 | 20.0 | -64 |
| 802.11ac Draft, 5 GHz, HT20 | 17.0 | 23.0 | 21.0 | -69 |
| 802.11ac Draft, 5 GHz, HT40 | 16.0 | 22.0 | 20.0 | -67 |
| 802.11ac Draft, 5 GHz, VHT80 | 16.0 | 22.0 | 20.0 | -64 |

**Configurable Transmission Power**
Transmission power configurable in 1.0 dBm increments
Unused radios can be disabled via software for lower power consumption

### PHYSICAL SPECIFICATIONS
**SKU**
AP832i: Six integrated dual-band omnidirectional PIFA antennas
AP832e: Six extended reverse polarity SMA connectors; shipment comes with six omnidirectional rubber ducky antennas

**Specification of Default Antenna**

| | Model Number | Description |
|---|---|---|
| 1 | MERU-P1633 | Internal antenna (Default in AP832i): MERU-P1633 2.4/5.x GHz dual-band omnidirectional antenna, 3dBi gain @ 2.4 GHz and 4 dBi @ 5.x GHz |
| 2 | ANT-01ABGN-0406-O | External antenna (Default in AP832e): ANT-01ABGN-0406-O, 2.4/5 GHz 4/6 dBi omnidirectional antenna with 1x RP-SMA jack |

**Specification of Optional External Antennas (Sold Separately)**

| | Model Number | Description |
|---|---|---|
| 1 | ANT-6ABGN-24 | 2.4/5.x GHz 2.5/4 dBi directional patch wall/pole-mount antenna, with 36-inch external coaxial cables and 6x RP-SMA male jacks |
| 2 | ANT-I3ABGN-0304 | 2.4/5.x GHz 3/4 dBi omnidirectional ceiling mount antenna, with 36-inch external coaxial cables and 3x RP-SMA male jacks |
| 3 | ANT-ABGN-23 | 2.4/5.x GHz 3/4 dBi directional patch wall/pole-mount antenna, with 60-inch external coaxial cables and 6x RP-SMA male jacks |
| 4 | ANT-ABNG230-W | 2.4/5.x GHz 2/3 dBi omnidirectional rubber ducky antenna with 1x RP-SMA male jacks |
| 5 | ANT-ABGN-470 | 2.4/5.x GHz 4.7/4.7 dBi omnidirectional rubber ducky antenna with 1x RP-SMA make jack |
| 6 | ANT-I2ABGN-0304-O | 2.4/5.x GHz 3/4 dBi omnidirectional ceiling mount antenna, with 36-inch external coaxial cables and 2x RP-SMA male jacks |
| 7 | ANT-O4ABGN-0607-PT | 2.4/5.x GHz 6/7 dBi directional patch wall/pole-mount antenna, with 36-inch external coaxial cables and 4x RP-SMA male jacks |
| 8 | ANT-O6ABGN-0607-PT | 2.4/5.x GHz 6/7 dBi directional patch wall/pole-mount antenna, with 36-inch external coaxial cables and 6x RP-SMA male jacks |
| 9 | ANT-06ABGN-0606-O | 2.4/5.x GHz 6/6 dBi omnidirectional wall/pole-mount antenna, with 36-inch external coaxial cables and 6x RP-SMA male jacks |

# AP832

## TECHNICAL SPECIFICATIONS

### PHYSICAL SPECIFICATIONS (continued)

**Power**
Operated at IEEE 802.3af power
Powered by IEEE Std 802.1af or at PoE (Power over Ethernet) injector or switch
12V external power adapter (sold separately)

**Other Interfaces**
Networks: One 10/100/1000 BASE-T Ethernet RJ45 uplink (G1), one 10/100/1000 BASE-T Ethernet RJ45 (G2) for downlink, auto-sensing link speed and MDI/MDX
Six RPSMA RF connectors for external antenna SKU (AP832e)
One RJ45 port (G1) support IEEE Std 802.3af or at PoE
One USB 2.0 port (Type-A) for future feature
One console port
One reset button
One Kensington security slot

**LED Indicators**
One tri-color LED over facade for AP status
Additional LEDs for Ethernet activity over two RJ45 ports (G1 & G2)

**Mounting**
Wall, desktop, or ceiling mount
Three mounting kits included with access point:
- 650-00232, 15/16" T-bar & wall-mount combo adapter
- 650-00233, 9/16" T-bar adapter
- Flat-surface wall-mount bracket (used with 650-00232)

Option (ordered separately)
- CBL-SERIAL-DB9-35, DB9-stereo console cable
- CBL-RJ45-ADAPT-X5, GbE extension adapter
- MNT-FEET-SET-X5, rubber feet for desktop staging

**Installation in the Air-Handling Space**
AP832e metal enclosure only by removing plastic façade

**Dimensions**
AP832i or AP832e (with mounting bracket): 7.1" x 7.1" x 2.7" (18.0 cm x 18.0 cm x 6.8 cm)
AP832e without plastic façade: 6.3" x 6.3" x 2.1" (16.1 cm x 16.0 cm x 5.2 cm)

**Weight**
AP832i (with mounting bracket): 2.3 lb (1.1 kg)
AP832e (with mounting bracket): 1 .9 lb (0.9 kg)
AP832e without façade and mounting bracket: 1.5 lb (0.7 kg)

**Environmental**
Operating temperature: 32° F to 122° F (0° C to 50° C)
Operating humidity: 5–95% (non-condensing)
Storage temperature: -40° F to 185° F (-40° C to 70° C) ambient
Storage humidity: 5–95% (non-condensing)

### REGULATORY APPROVAL

FCC (United States of America)
CE Mark (European Community)
Industry Canada (Canada)
TELEC (Japan)
Safety Approval (worldwide)
EU RoHS
•For more country-specific regulatory approval, please contact your Meru representative
.

### CERTIFICATIONS

Wi-Fi certified IEEE Std 802.11a/b/g/n/ac

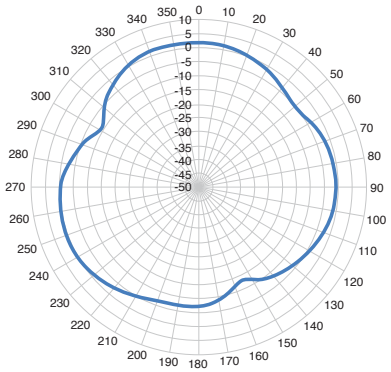
### WARRANTY

Limited lifetime warranty

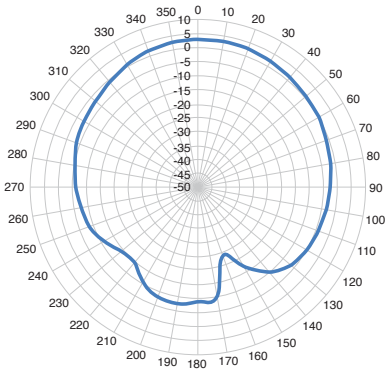
# AP832

## Antenna Radiation Patterns (Internal Antenna Model)

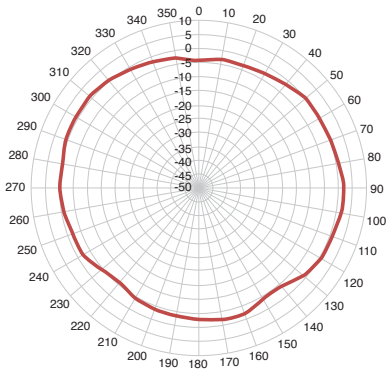
| | | |
|---|---|---|
| Internal Antenna (MERU-P1633) | 2.4 GHz ~ 2.5 GHz | 4.9 GHz ~ 5.9 GHz |
| Average Antenna Gain | 3.0 dBi | 4.0 dBi |
| Polarization | Linear | Linear |
| Azimuth Beam-width | 195° | 190° |
| Elevation Beam-width | 98° | 100° |
| VSWR | 1:2.0 | 1:2.0 |



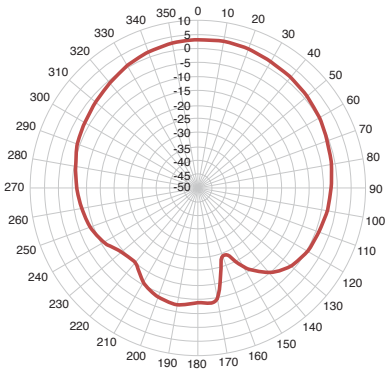
**2.4 GHz H-plane**



**2.4 GHz E-plane**



**5 GHz H-plane**

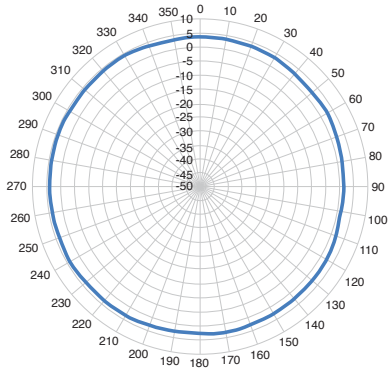


**5 GHz E-plane**

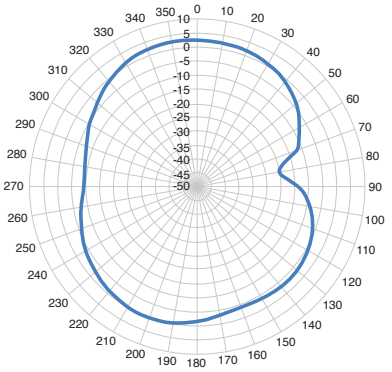
# AP832

## Antenna Radiation Patterns (External Antenna Model)

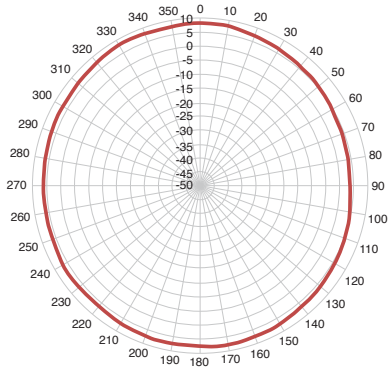
| External Antenna | 2.4 GHz ~ 2.5 GHz | 4.9 GHz ~ 5.9 GHz |
|---|---|---|
| Average Antenna Gain | 3.3 dBi | 6.0 dBi |
| Polarization | Linear | Linear |
| Azimuth Beam-width | 360° | 360° |
| Elevation Beam-width | 75° | 55° |
| VSWR | 1:1.5 | 1:1.5 |



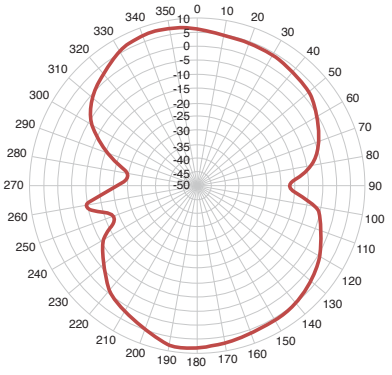
**2.4 GHz H-plane**



**2.4 GHz E-plane**



**5 GHz H-plane**



**5 GHz E-plane**

**Meru** delivers an all-wireless network that fully supports the enterprise, delivering a consistent, interactive experience for all users. No matter what applications they are running. No matter how many other users are on the network.

For more information, visit **www.merunetworks.com** or email your questions to: meru**info@merunetworks.com**

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